



Union Street Corridor Study

Waterfront Commission Meeting #3
September 27, 2012



Agenda

- Project Goals
- Recommendation Development Process
- Framework for Concept Development
- Short-term Recommendations
- Long-term Recommendations
- Next Steps

Project Goals and Challenges

- Evaluate existing conditions along Union Street for all modes.
- Identify specific strategies to ensure that Union Street fosters connections.
- Balance the needs of all modes and follow Complete Streets design principles.
- Enhance safety for all modes.



Recommendation Development Process

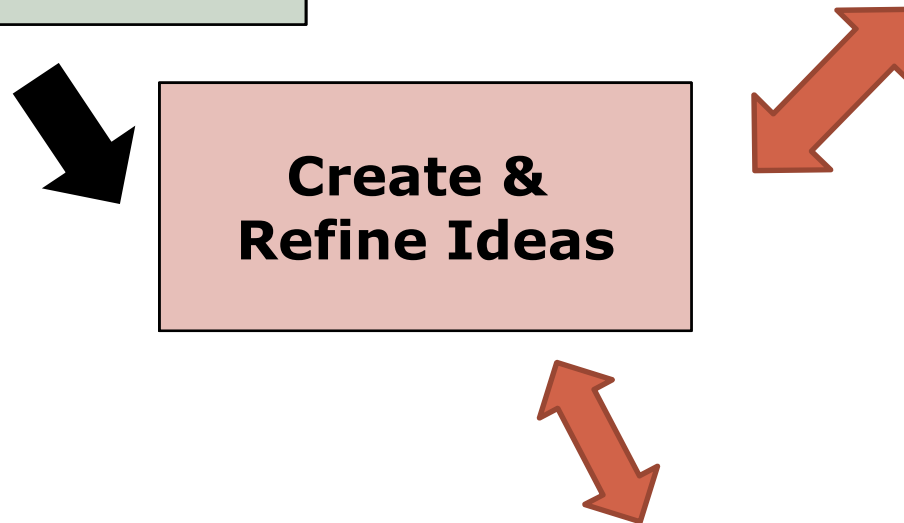


Data Collection & Analysis

- Multi-modal traffic counts
- Daily traffic counts
- Field observations
- Crash data analysis
- On-street parking
- Motorcoach observations
- Delivery truck observations

Stakeholder Engagement

- Trail Intercept Surveys
- Stakeholder Interviews
- Waterfront Commission Meetings
- Public Meeting
- City Staff Working Sessions



Create & Refine Ideas

Recommendations

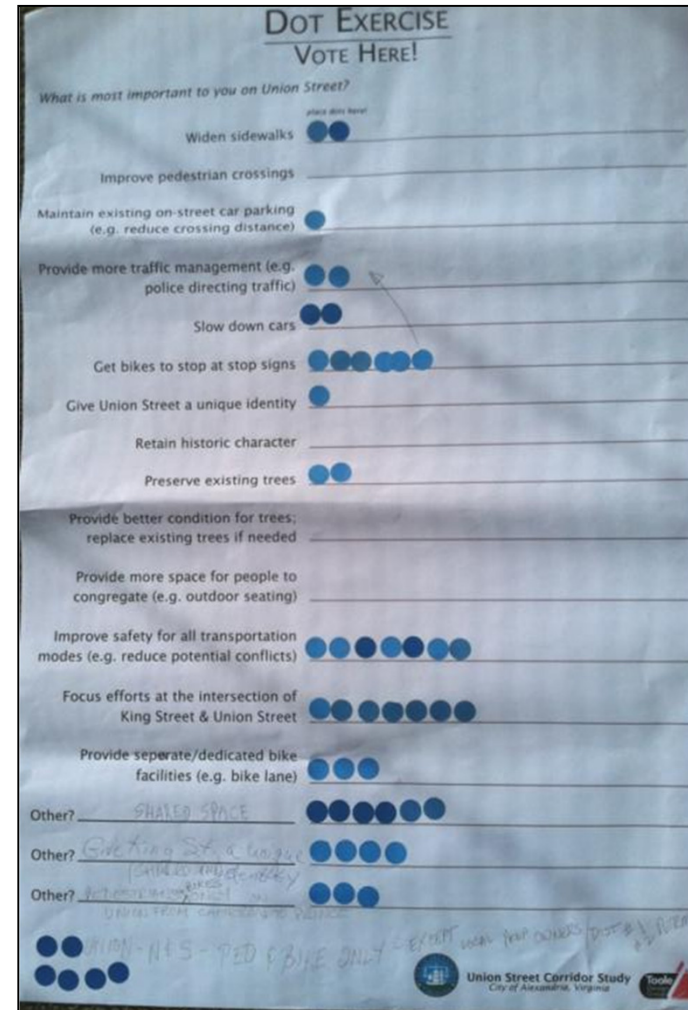


Overview of Feedback Received

Concept Idea Questionnaire Results
 Note: These numbers are based on 9 responses from the official Waterfront Commission representatives.

Number	Question	Comfortable	Open to the idea	Uncomfortable	Comments
1	Current conditions on Union Street are not good enough, some change is needed.	100%, 9/9			
2	It is important to maintain the historic character of Union Street.	88.8%, 8/9	11.1%, 1/9		
3	A separate bike facility (e.g. bike lane or cycle track) on Union Street is not necessary or required.	44.4%, 4/9	33.3%, 3/9	11.1%, 1/9	
4	Make the entire length of Union Street one-way.		22.2%, 2/9	77.7%, 7/9	
5	Make a small portion of Union Street one-way, for example right around the intersection of King and Union.		44.4%, 4/9	55.5%, 5/9	
6	Given the existing usage pattern on Union Street, pedestrians are and should continue to be the priority user on Union Street.	77.7%, 7/9	11.1%, 1/9	11.1%, 1/9	YES
7	Remove all on street parking.	33.3%, 3/9	33.3%, 3/9	44.4%, 4/9	loading zone though, 100&200 block N&S, one person had 2 boxes checked - open and uncomfortable
8	Remove on-street parking at selected locations, for example to provide for expanded tree boxes or build bulb-outs.	77.7%, 7/9	11.1%, 1/9	11.1%, 1/9	no bulb outs
9	Consider flexible/temporary on-street parking arrangements.	44.4%, 4/9	33.3%, 3/9	22.2%, 2/9	YES, YES
10	More police enforcement is needed (for parking, loading, stop sign compliance).	100%, 9/9			one person put 3 checks in the comfortable box.
11	A traffic signal is an appropriate way to manage traffic at the intersection of Union Street & King Street.	22.2%, 2/9	44.4%, 4/9	44.4%, 4/9	on person check 2 boxes - comfortable and open
12	A police officer is an appropriate way to manage traffic at the intersection of Union Street & King Street.	77.7%, 7/9	33.3%, 3/9		on person check 2 boxes - comfortable and open
13	If motor vehicles and bicycles are traveling slowly enough, they may be able to share the space with pedestrians (e.g. plaza type design).	44.4%, 4/9	22.2%, 2/9	33.3%, 3/9	
14	Widening the existing sidewalks where there are the greatest pedestrian volumes is a critical and necessary outcome of the design.	77.7%, 7/9	11.1%, 1/9	11.1%, 1/9	
15	Keeping existing trees and improving growing conditions, if possible, is a priority.	11.1%, 1/9	33.3%, 3/9	44.4%, 4/9	no take them out!, should be replanted if sidewalks widened
16	If necessary to meet other objectives, removing existing trees can be considered as long as they are replaced and given better growing conditions.	77.7%, 7/9	22.2%, 2/9		yes, replace
Other General Comments:		Relocate motorcoach parking. Various hours, days, seasons for different uses including parking, sidewalk dining spilling out, deliveries! Have trolley stop at King and Union if you were to eliminate the current status of unit block of King Street.			

August Waterfront Commission Meeting Questionnaire



Public Meeting Questionnaire



Framework for Recommendations Development

- Some change is needed
- Pedestrians are the priority
- Unique solutions for different areas
- Existing historic infrastructure
- Continue to serve all users
 - Motor vehicle
 - Motorcoach & Trolley
 - Delivery truck
 - Bicycle
- Other

Some Change is Needed

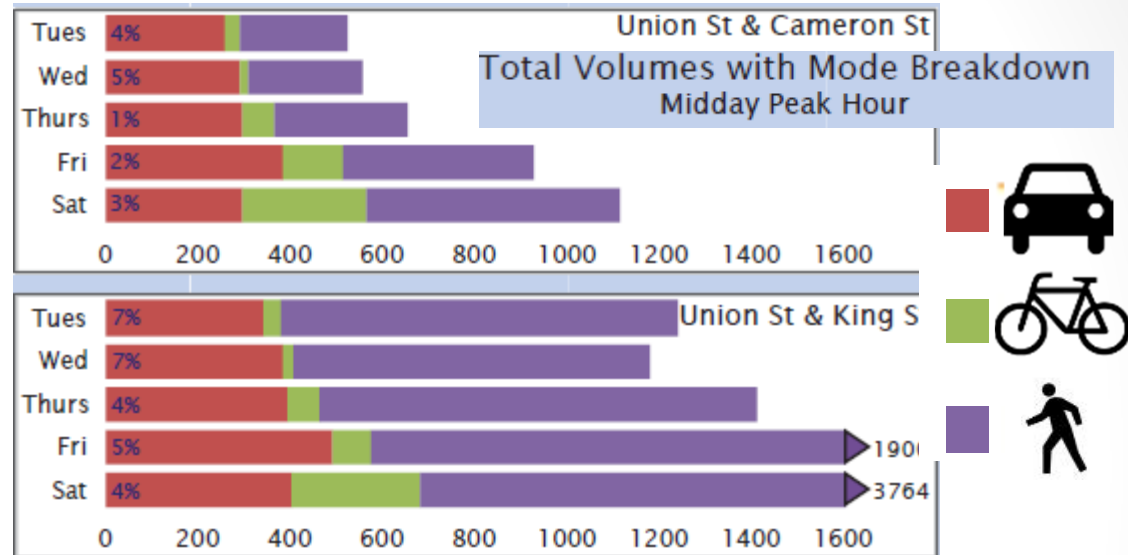
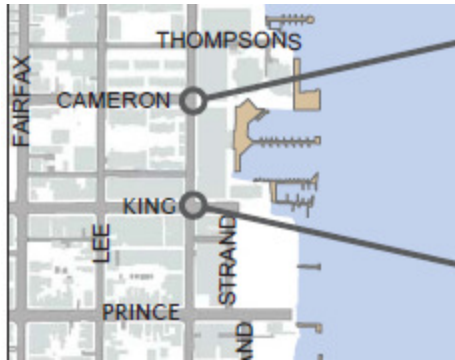
100% comfortable with the statement “Current conditions on Union Street are not good enough; some change is needed”.

- August Waterfront Commission Meeting



Pedestrians are the Priority

Data show us...



Observations show us...

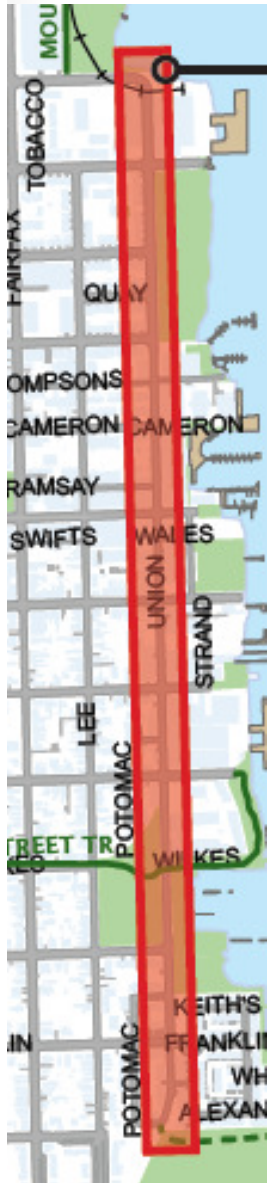


89% comfortable or open to the idea that pedestrians are the priority user on Union Street.

- August Waterfront Commission Meeting

Unique Solutions for Different Areas

Multi-Modal Volumes on Union Street

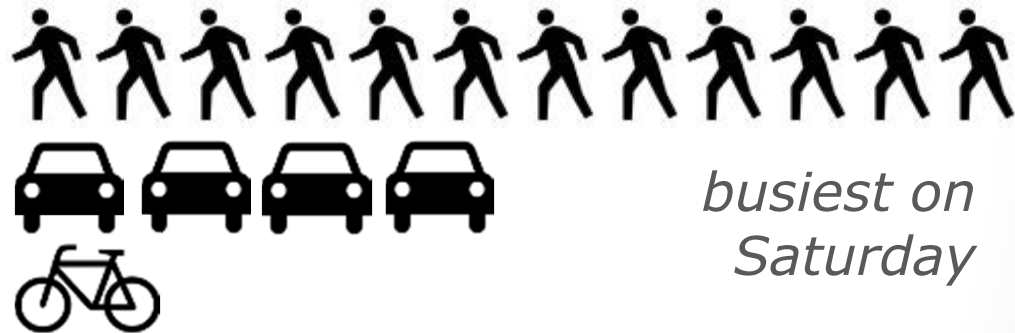


PENDLETON
to
CAMERON



*consistent
throughout
week*

CAMERON
to
DUKE



*busiest on
Saturday*

DUKE
to
FRANKLIN

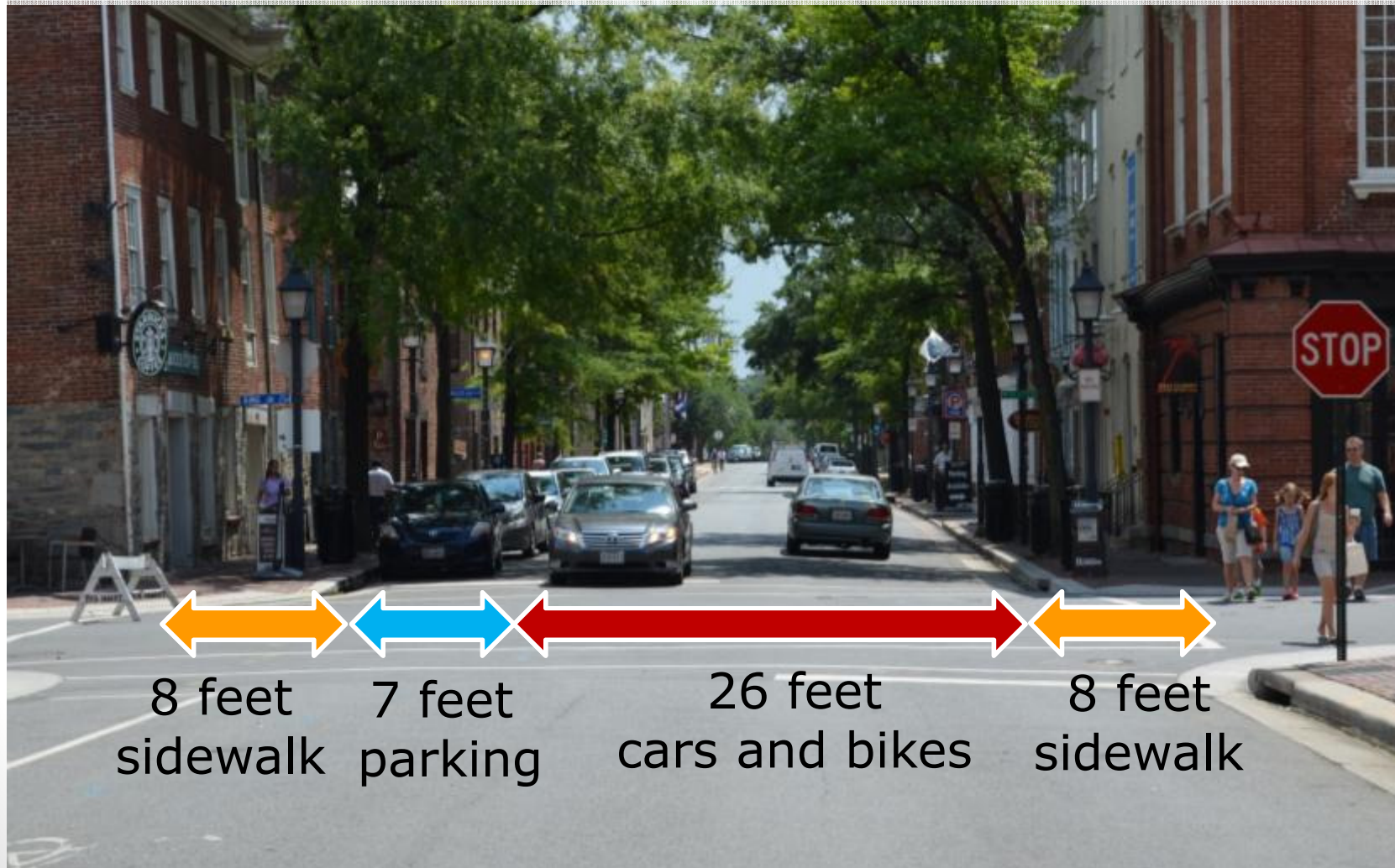


*consistent
throughout
week*



Existing Historic Infrastructure

From building face to building face....



Continue to Serve All Modes

Modes

- Motor vehicle
- Motorcoach & Trolley
- Delivery truck
- Bicycles

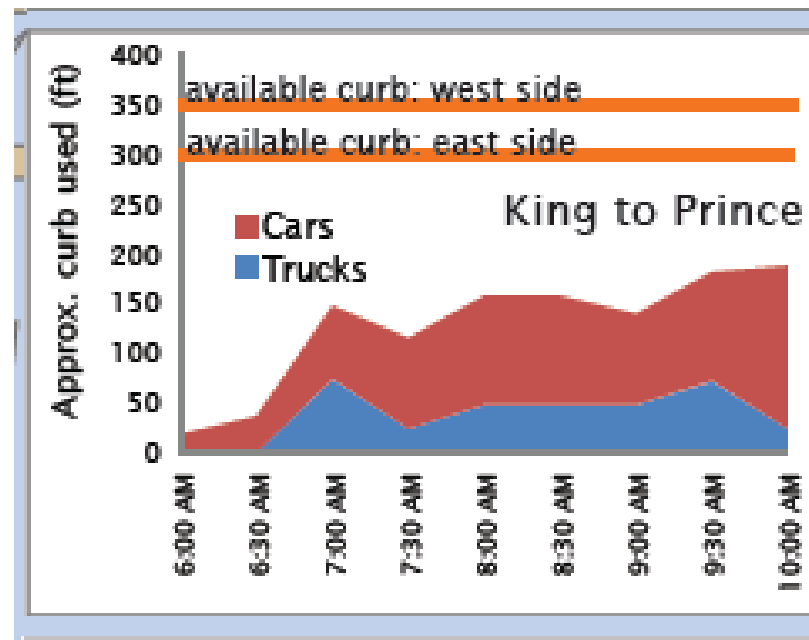
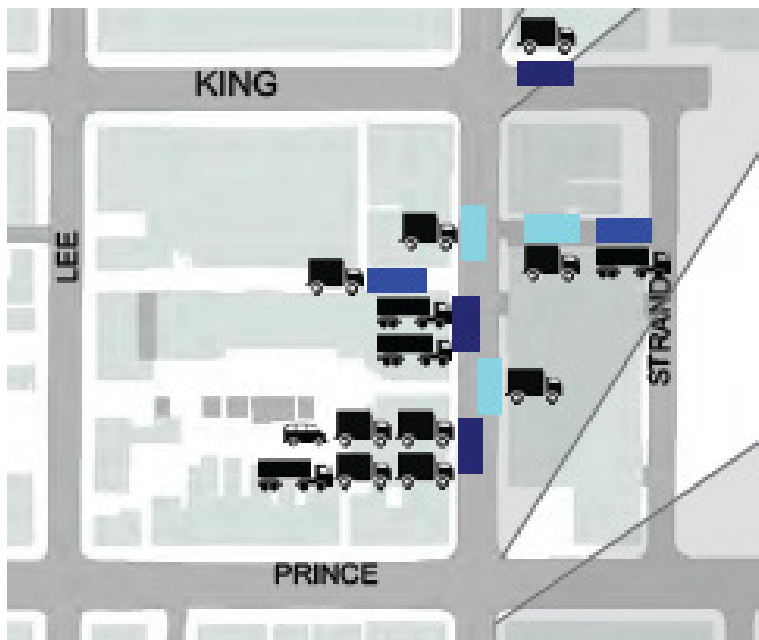


Considerations

- Motor vehicle access necessary in part because of parking garage access
- Opportunity to close Union Street to motor vehicle traffic for events remains

Continue to Serve All Modes: Delivery Vehicles - Observations

Weekday (6AM-10AM) Loading Activity King to Prince

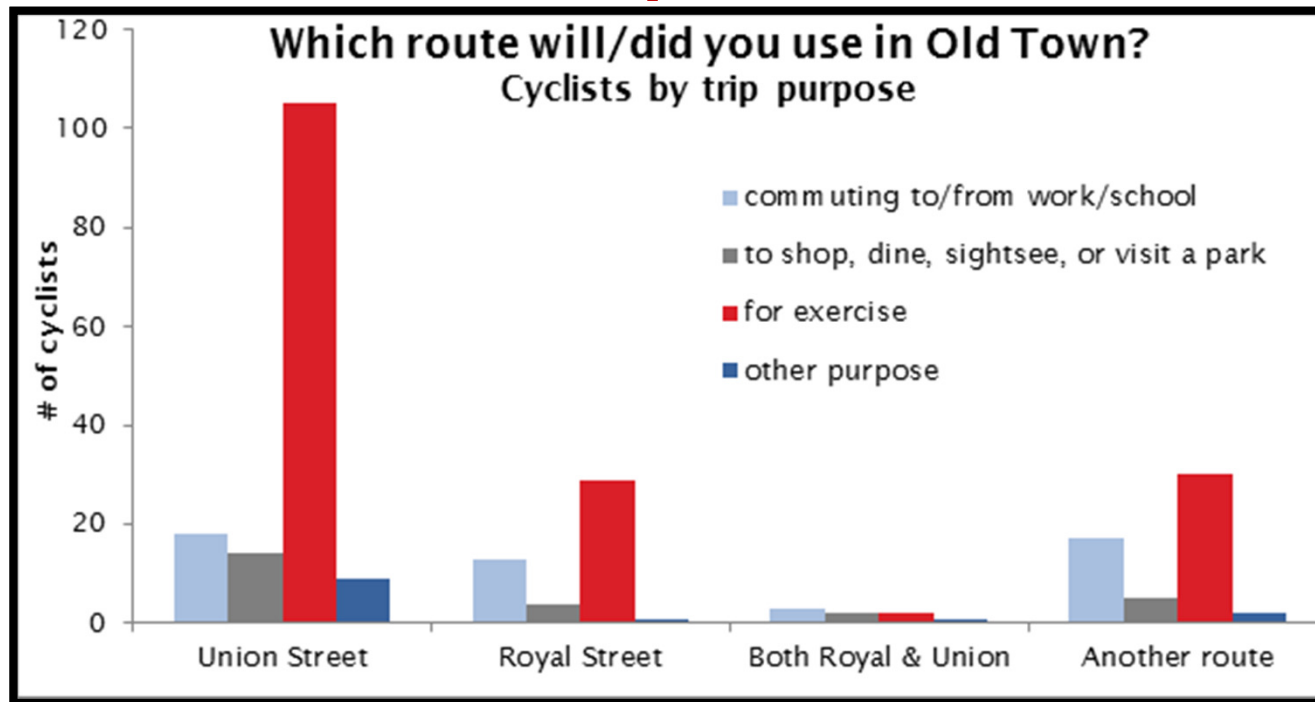


Delivery Vehicles - Recommendations

- Created delivery loading zones
- Set and enforce loading periods
- Relocate (when possible) delivery activity to alleys



Continue to Serve All Modes: Bicycles - Data

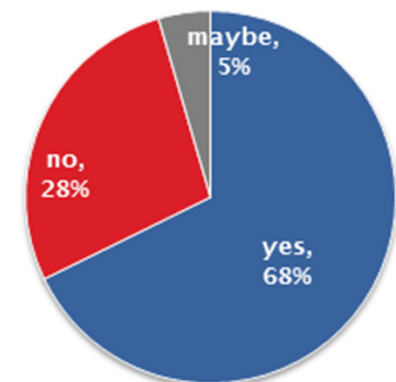


When asked, "Why do you prefer your current route?"

- On Union Street, ~35% "prefer the atmosphere"
- On Royal Street, ~35% "route closest to my destination"

Would you change your route?

Union Street cyclists

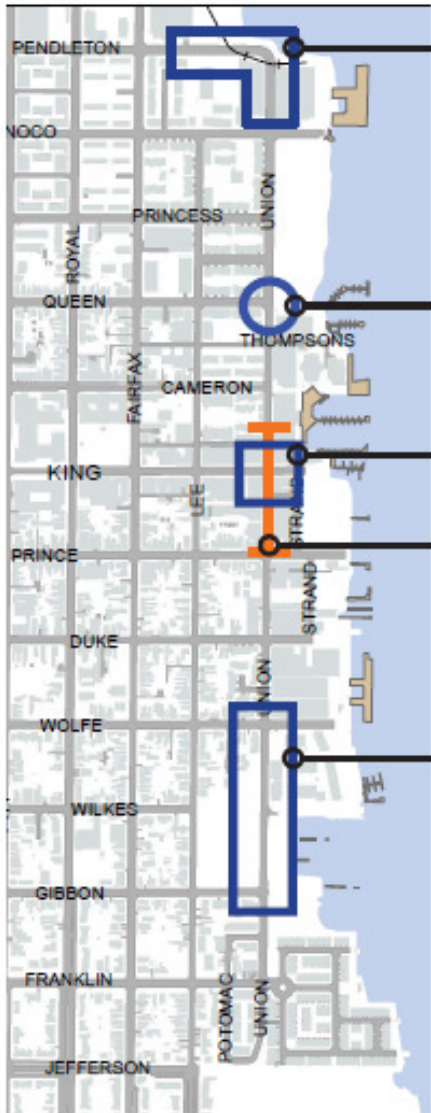


Continue to Serve All Modes: Bicycles - Recommendations

- Maintain Mount Vernon connection
- Add traffic calming
- Provide enforcement
- Bicycle boulevard recommendations
 - Parallel route



Short-term Improvements



Mt. Vernon Trail Connection

Transition between Bike Lanes & Shared Lanes

Intersection of King & Union St

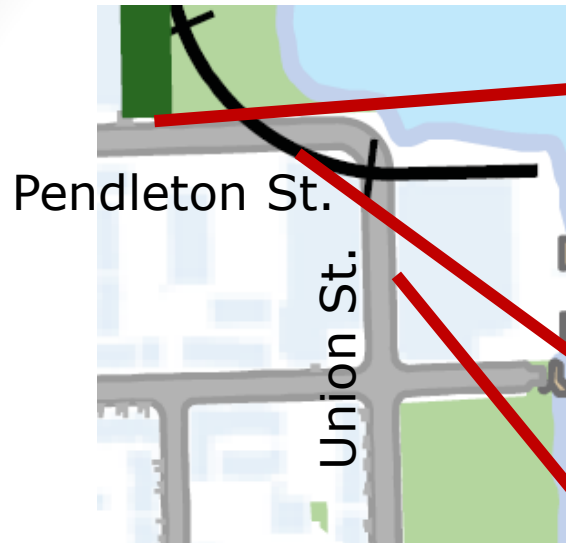
Pilot Part-Time Parking

Windmill Hill Park Improvements

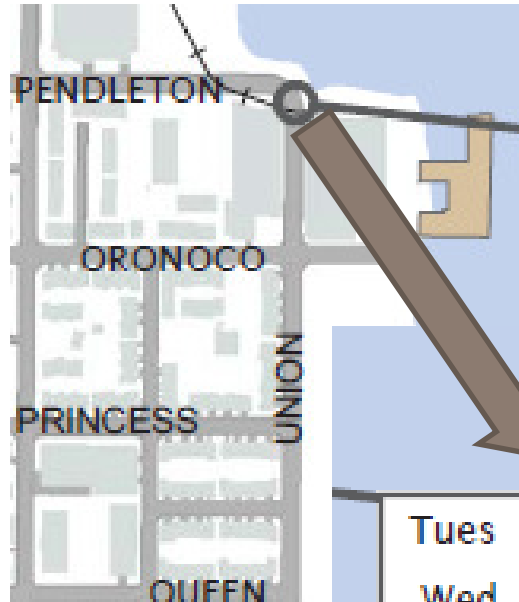
Increase Traffic Enforcement

Add Bike Parking

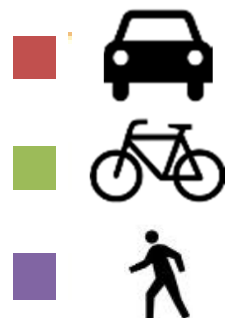
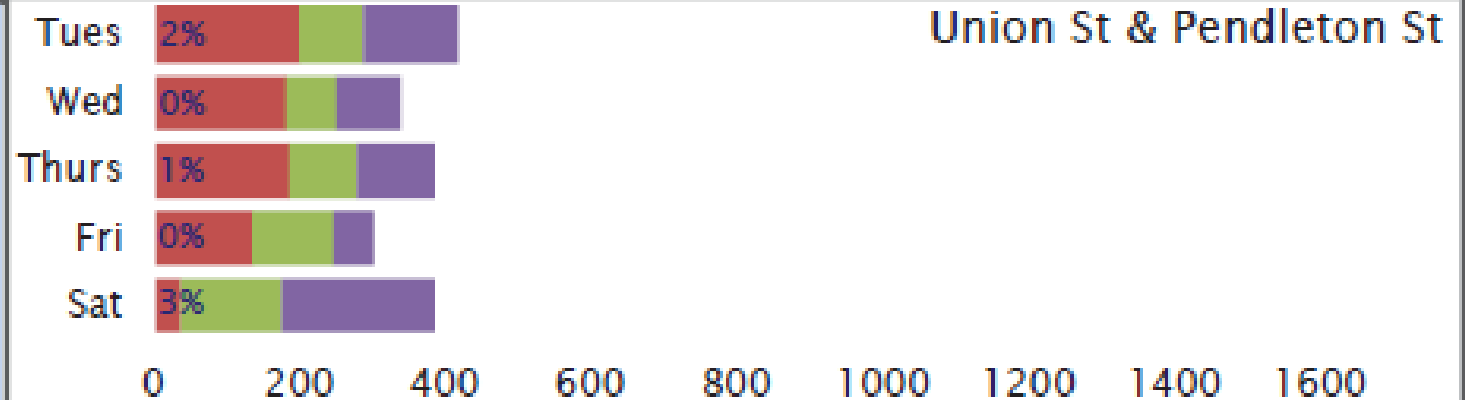
Mt. Vernon Trail Connection - Issues



Mt. Vernon Trail Connection – Data



Total Volumes with Mode Breakdown
PM Peak Hour

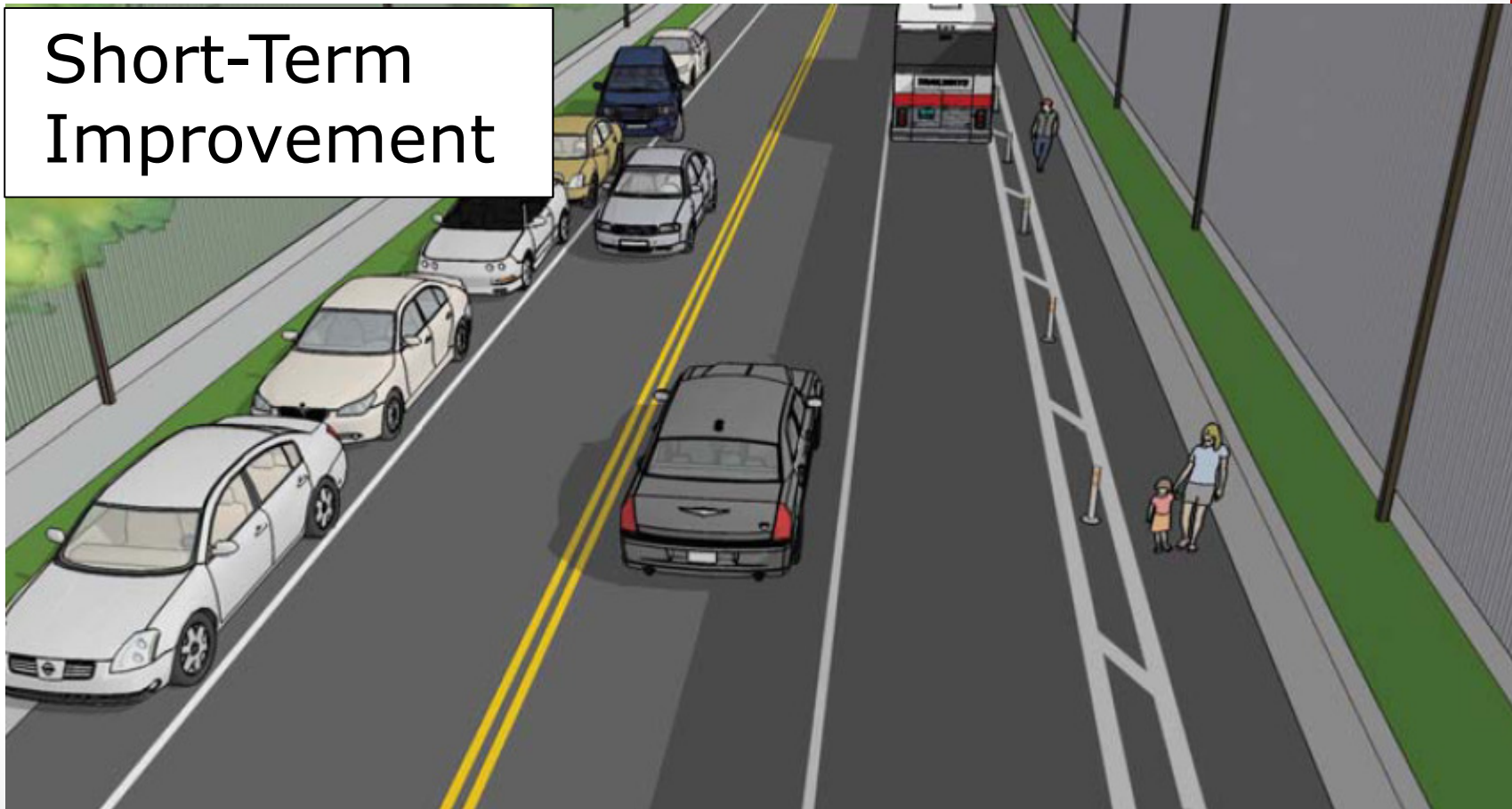


X% Percent Heavy Vehicles

Mt. Vernon Trail Connection

Pedestrian space on east side of Union St

Short-Term
Improvement



Mt. Vernon Trail Connection

Pedestrian space on east side of Union St

Mid-Term
Improvement



Mt. Vernon Trail Connection Improvement: Eliminate Crosswalk

Eliminate crosswalk

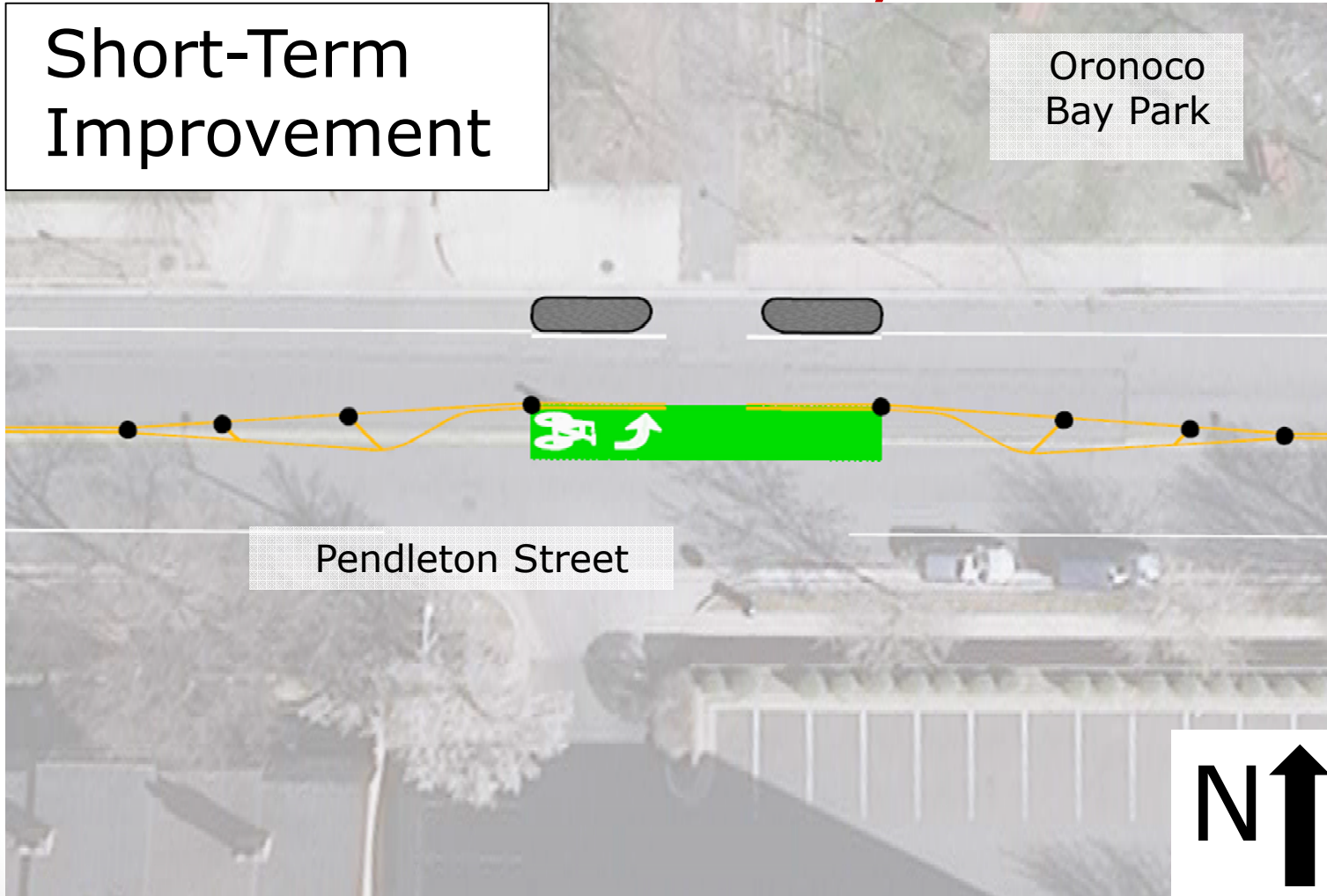


Mt. Vernon Trail Connection

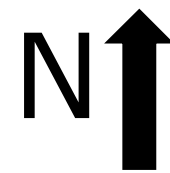
Left-turns for Bicyclists

Short-Term
Improvement

Oronoco
Bay Park



Pendleton Street



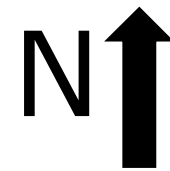
Mt. Vernon Trail Connection

Left-turns for Bicyclists

Mid-Term
Improvement

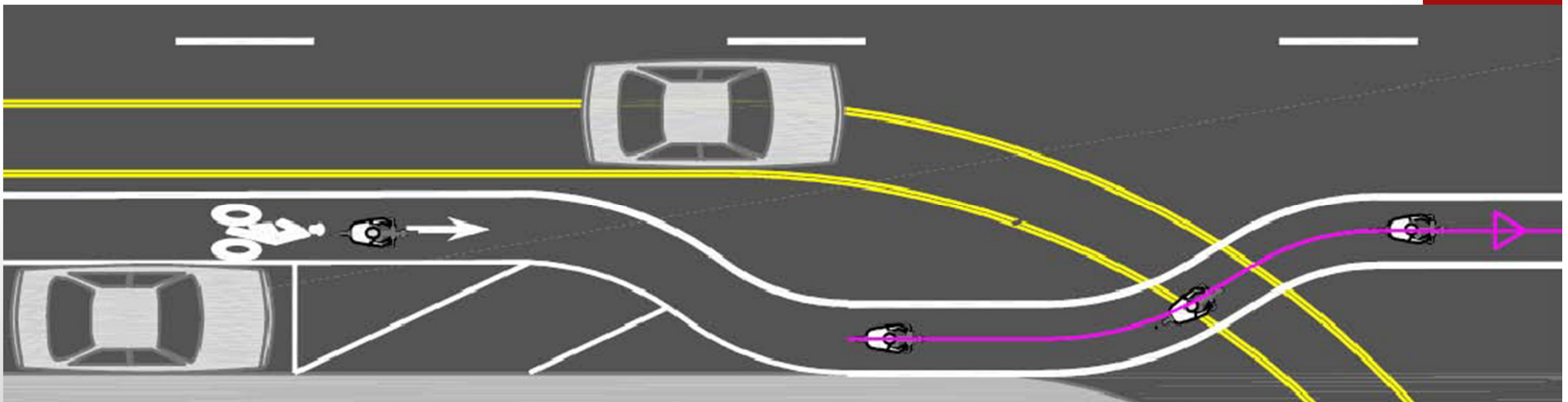
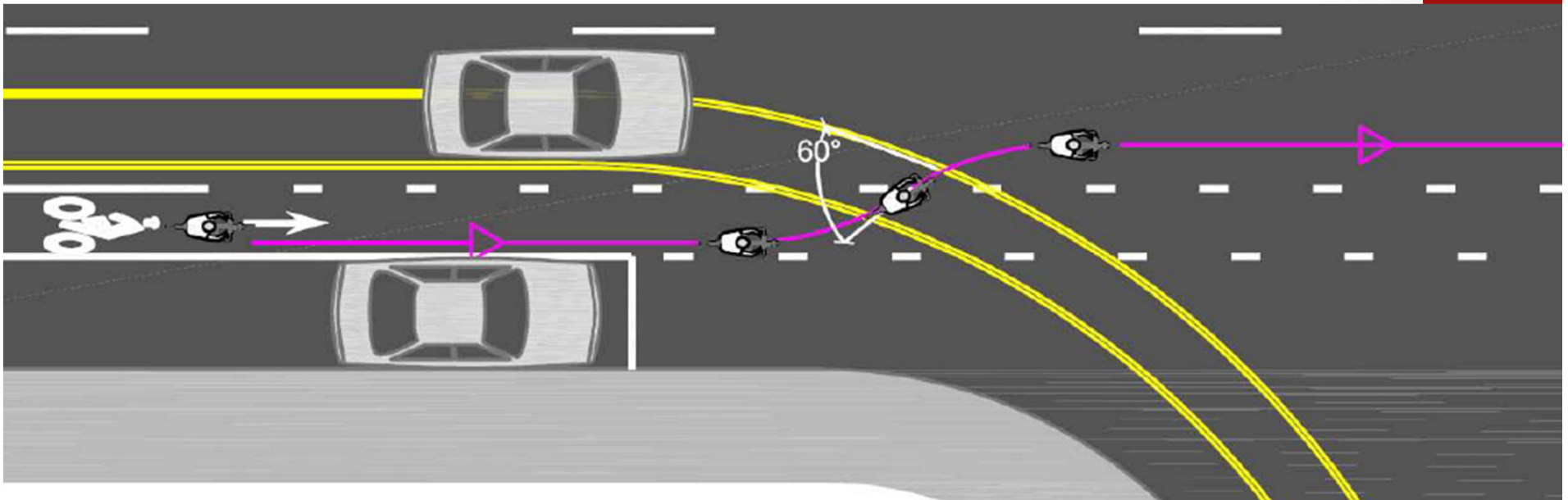
Oronoco
Bay Park

Pendleton Street

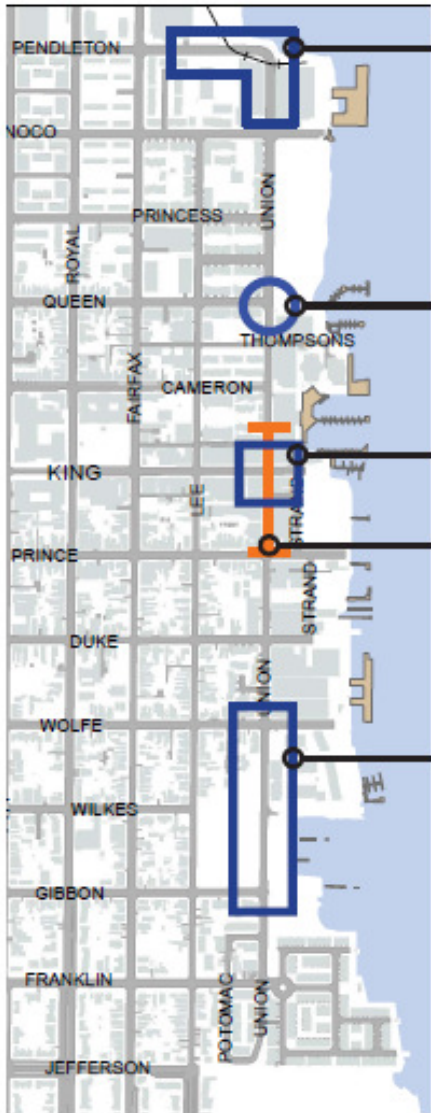


Mt. Vernon Trail Connection

Crossing train tracks



Short-term Improvements



Mt. Vernon Trail Connection

Transition between Bike Lanes & Shared Lanes

Intersection of King & Union St

Pilot Part-Time Parking

Windmill Hill Park Improvements

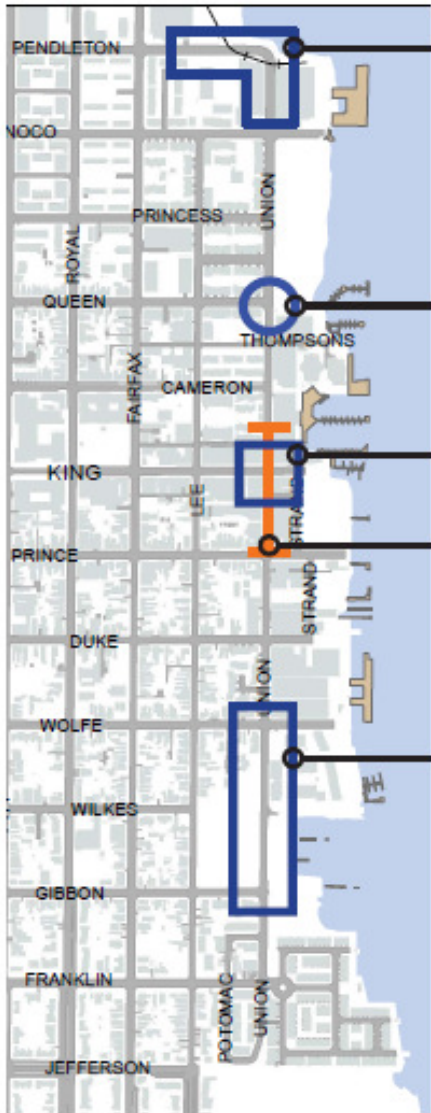
Increase Traffic Enforcement

Add Bike Parking

Transition between Bike Lanes & Shared Lanes



Short-term Improvements



Mt. Vernon Trail Connection

Transition between Bike Lanes & Shared Lanes

Intersection of King & Union St

Pilot Part-Time Parking

Windmill Hill Park Improvements

Increase Traffic Enforcement

Add Bike Parking

King & Union Street



Unit block of King Street, Waterfront Plan recommended:

- Making the unit block of Unit Street a “pedestrian hub”.
- Limiting motor vehicle access



King & Union Street

- Conflicts between all users
- Motorist frustration
- Bicycles compliance with stop sign

King & Union Street

Video Behavioral Analysis Results

- Pedestrians crossing outside crosswalk
- Motorists encroaching on crosswalk
- Low bicyclist compliance, many bicyclists slowed at intersection



King & Union Street

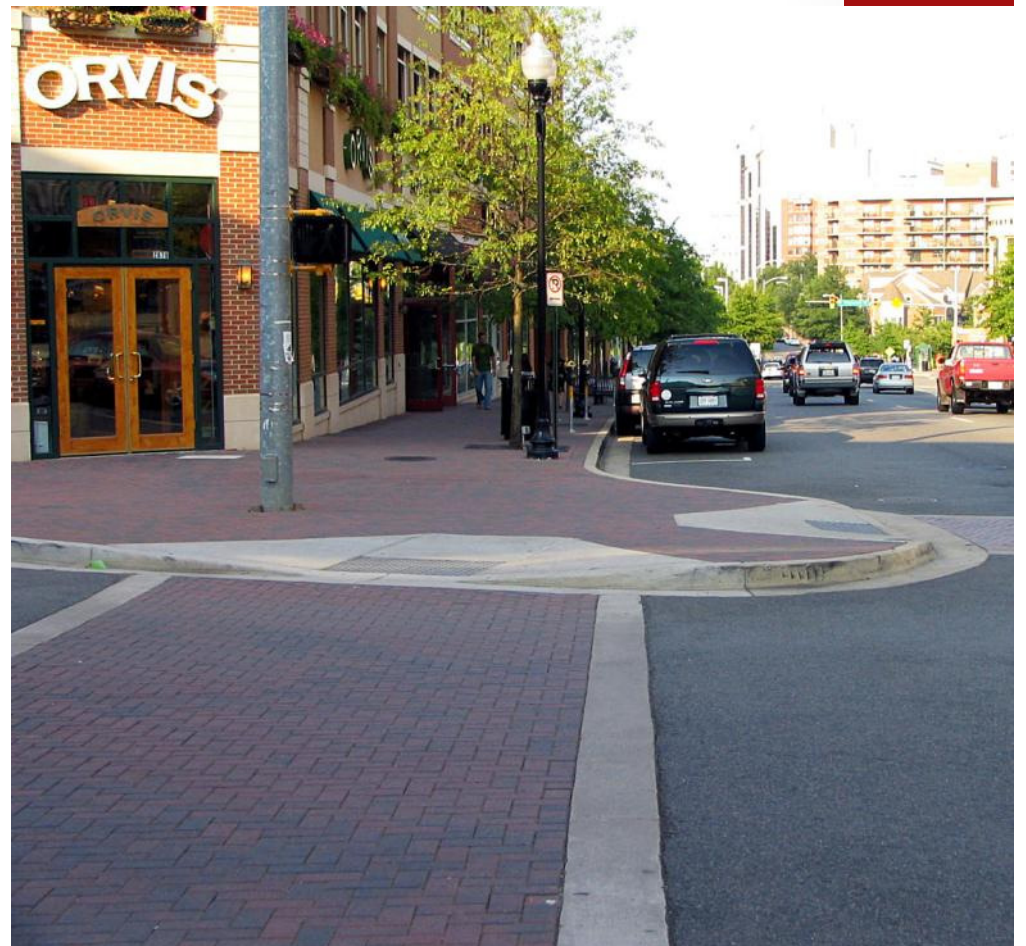
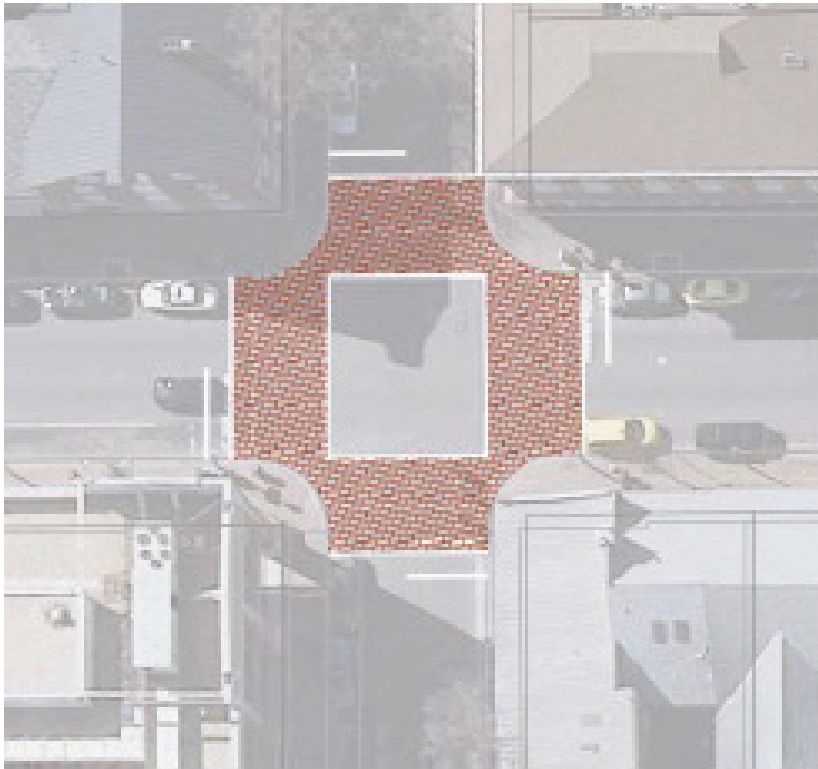
Video Behavioral Analysis Results

- Many pedestrians crossed with NO Conflict
 - 51% crossed when no motorists were present
 - 94% crossed when no bicyclists were present
- Yielding to pedestrians results
 - 76% pedestrians yield to by motorist
 - 31% pedestrians yielded to by bicyclist



King & Union Street: Short-term

IMPROVED CROSSWALKS

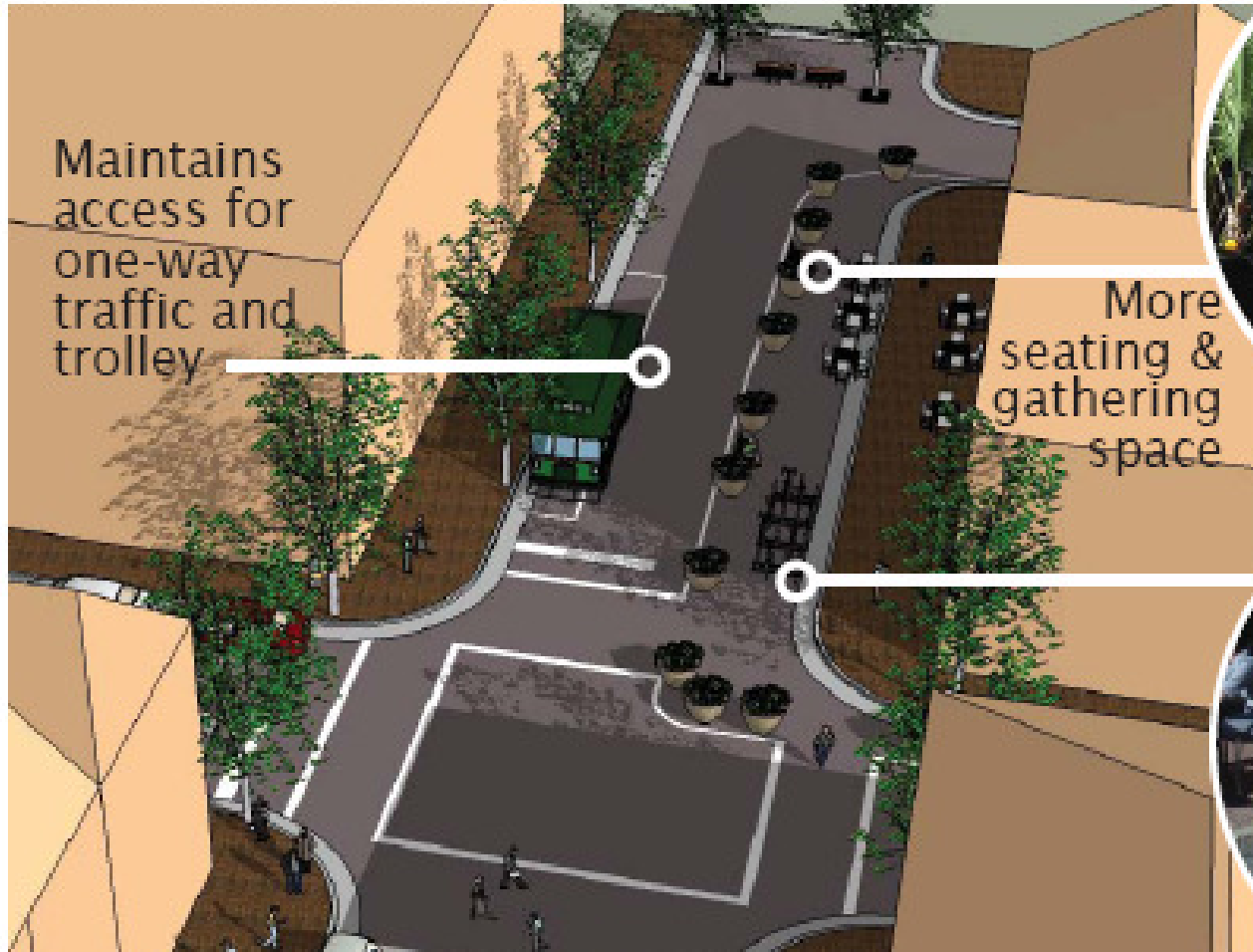






King & Union Street: Short-term

PILOT PEDESTRIAN SPACE



Use pilots to test different and possibly "outside of the box" solutions. - June Waterfront Commission Meeting

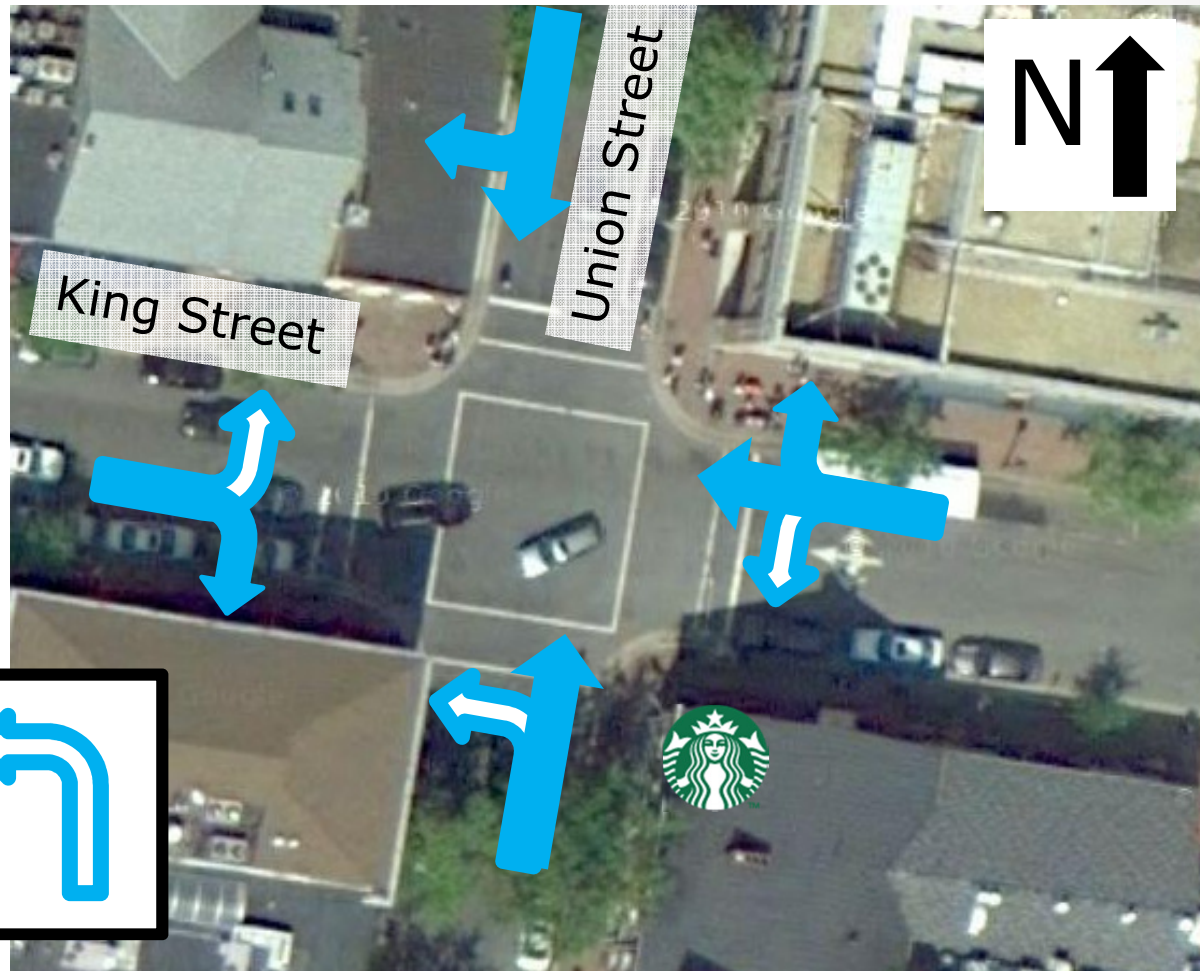
Bike corral for more bike parking

King & Union Street: Short-term

PILOT LEFT-TURN
RESTRICTIONS



Restricted
Left-Turn



Consider restricting left-turns at King & Union
- *August Waterfront Commission Meeting*

King & Union Street

Other Options Considered:

- Depend on long term plan
 - Raised intersection
 - Curb extensions
- Considered but not recommended
 - Traffic signal

TRAFFIC SIGNAL



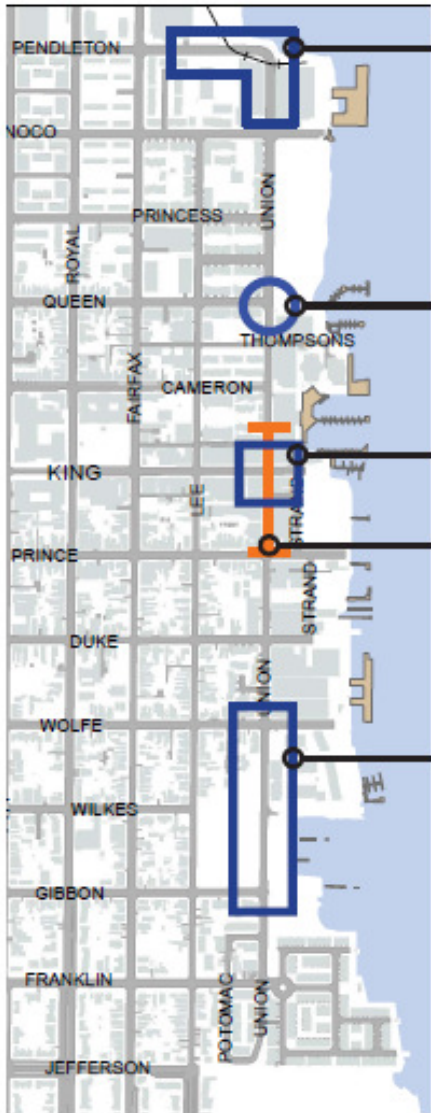
CURB EXTENSIONS



15 pedestrians without & with a curb extension

Decrease crossing distance and alleviate corner crowding

Short-term Improvements



Mt. Vernon Trail Connection

Transition between Bike Lanes & Shared Lanes

Intersection of King & Union St

Pilot Part-Time Parking

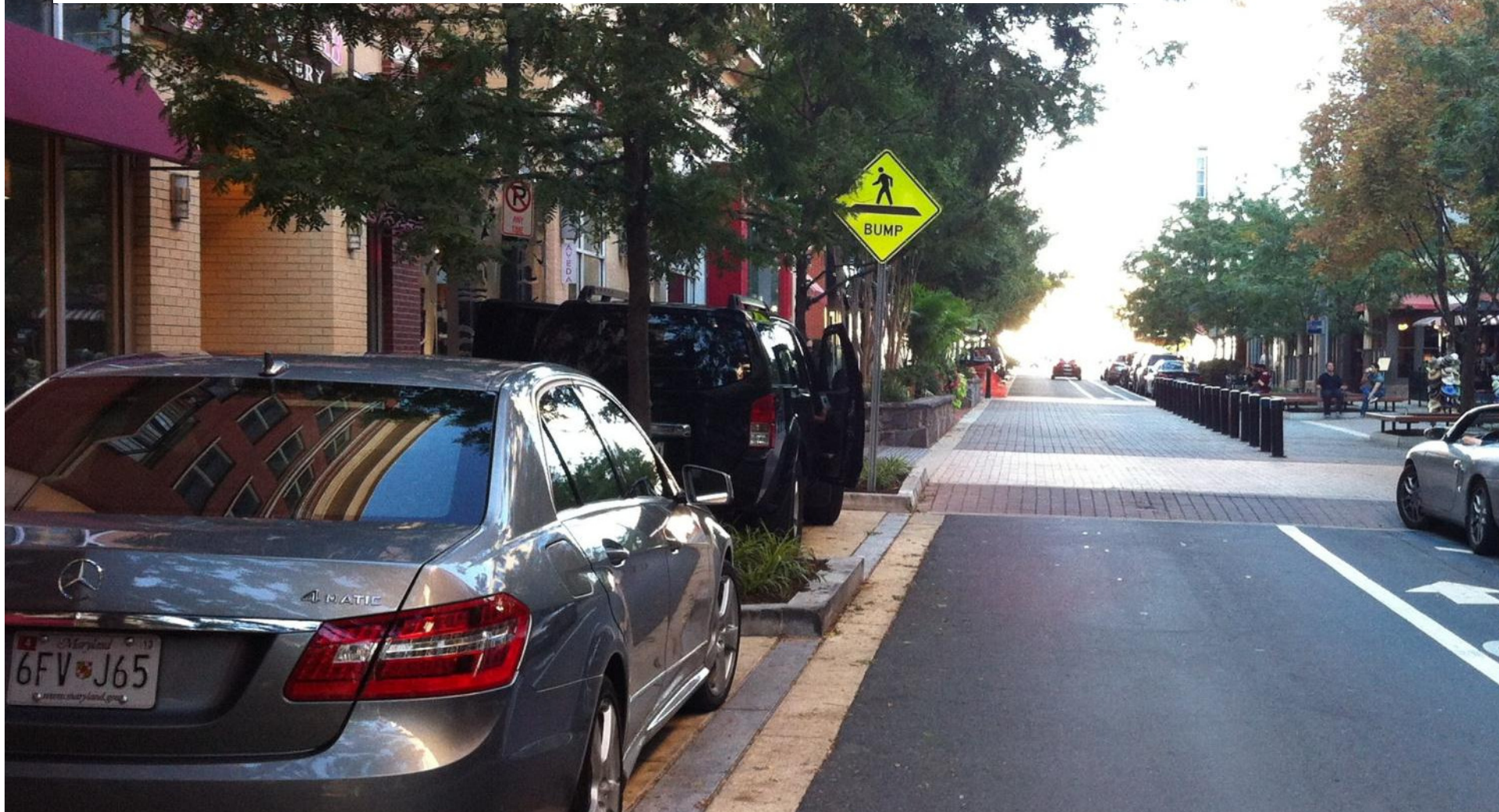
Windmill Hill Park Improvements

Increase Traffic Enforcement

Add Bike Parking

Pilot Part-time Parking

At Waterfront Commission Meetings, heard: Eliminate some on-street parking right at King & Union.

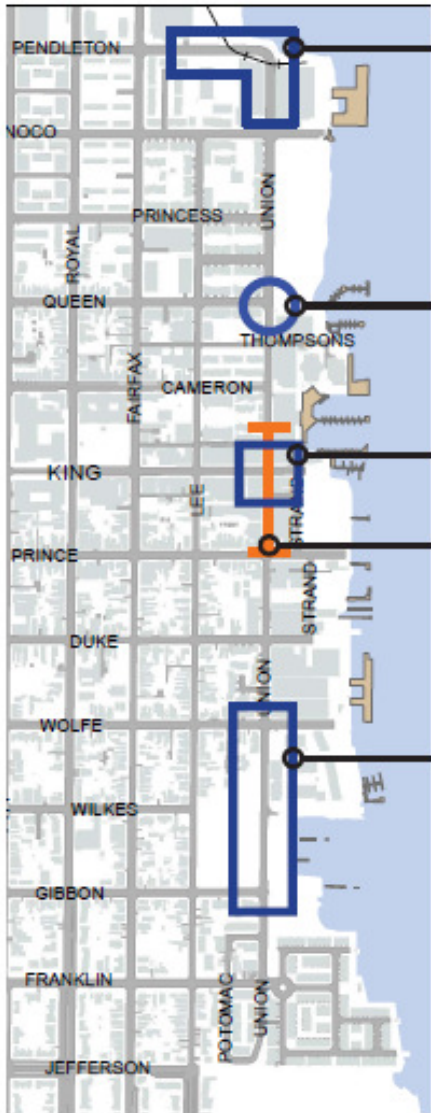




Alternative Uses of Parking



Short-term Improvements



Mt. Vernon Trail Connection

Transition between Bike Lanes & Shared Lanes

Intersection of King & Union St

Pilot Part-Time Parking

Windmill Hill Park Improvements

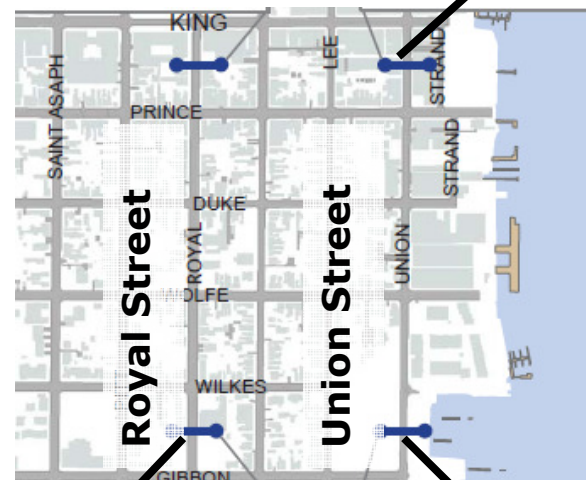
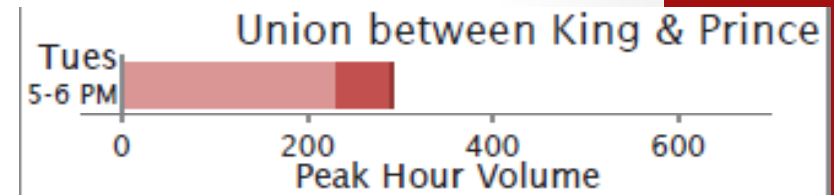
Increase Traffic Enforcement

Add Bike Parking

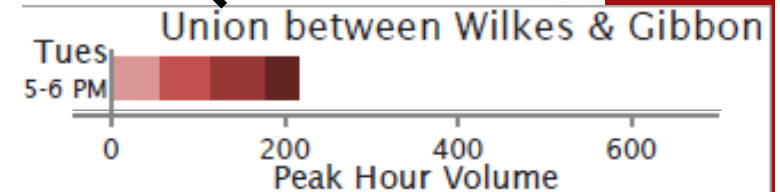
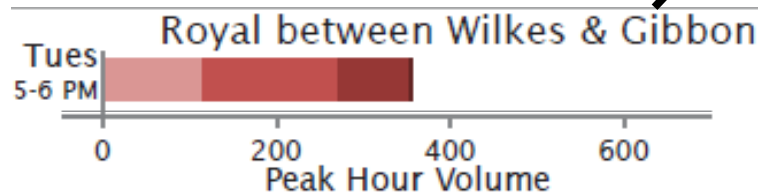


Windmill Hill Park

Speeds in front of park are higher than other locations in Old Town

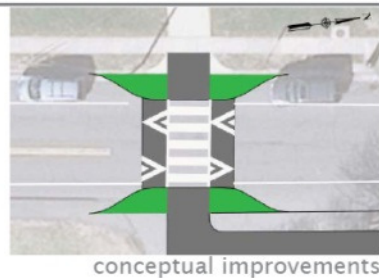
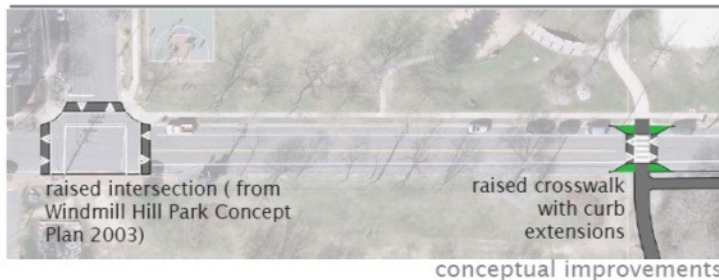


- Vehicles (1-15 mph)
- Vehicles (16-20 mph)
- Vehicles (21-25 mph)
- Vehicles (26+ mph)

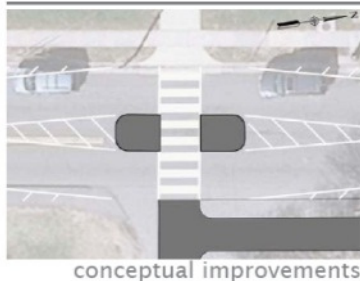


Windmill Hill Park

OPTION 1: RAISED CROSSWALK - Preferred



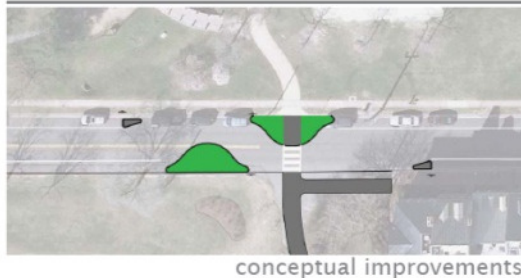
OPTION 1A: CENTER MEDIAN



SITE ISSUES

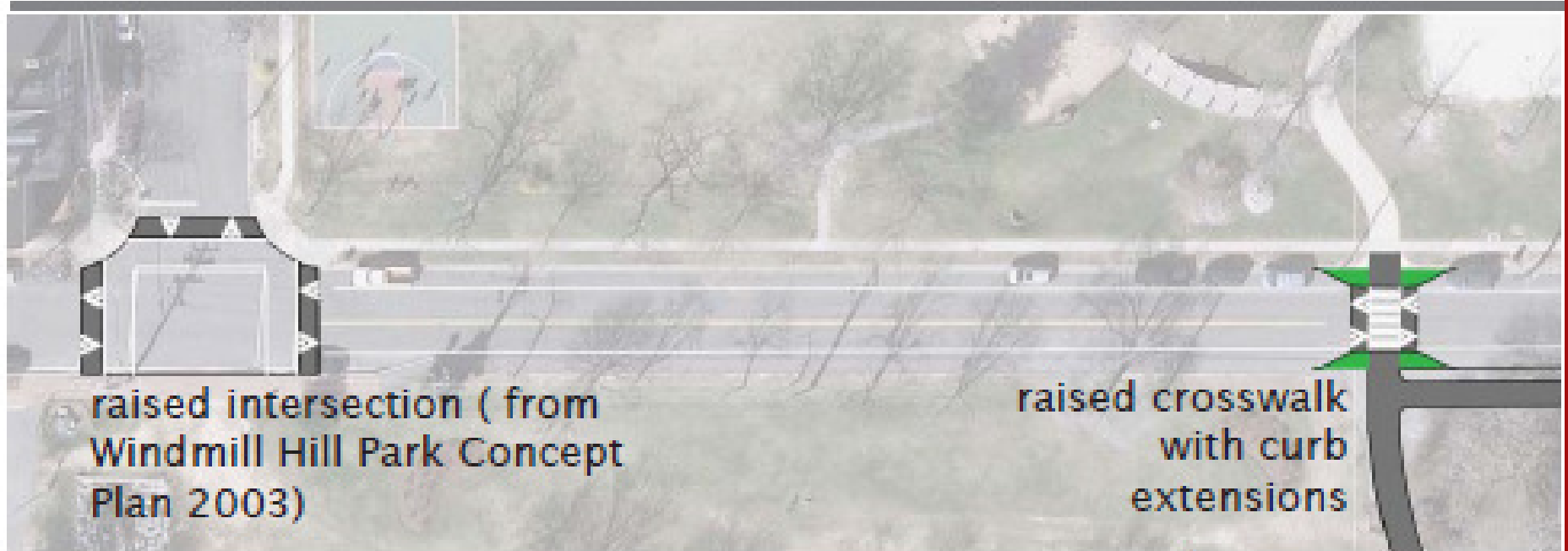
- Cars speeding between Wolfe Street and Gibbon Street
- Bicycles entering and exiting via Wilkes Street Trail
- Desire to connect both sides of Windmill Hill Park
- Desire to build on work done in Windmill Hill Park Concept Plan (2003)
- All improvements to be coordinated with future bulkhead and park design

OPTION 2: CHICANE



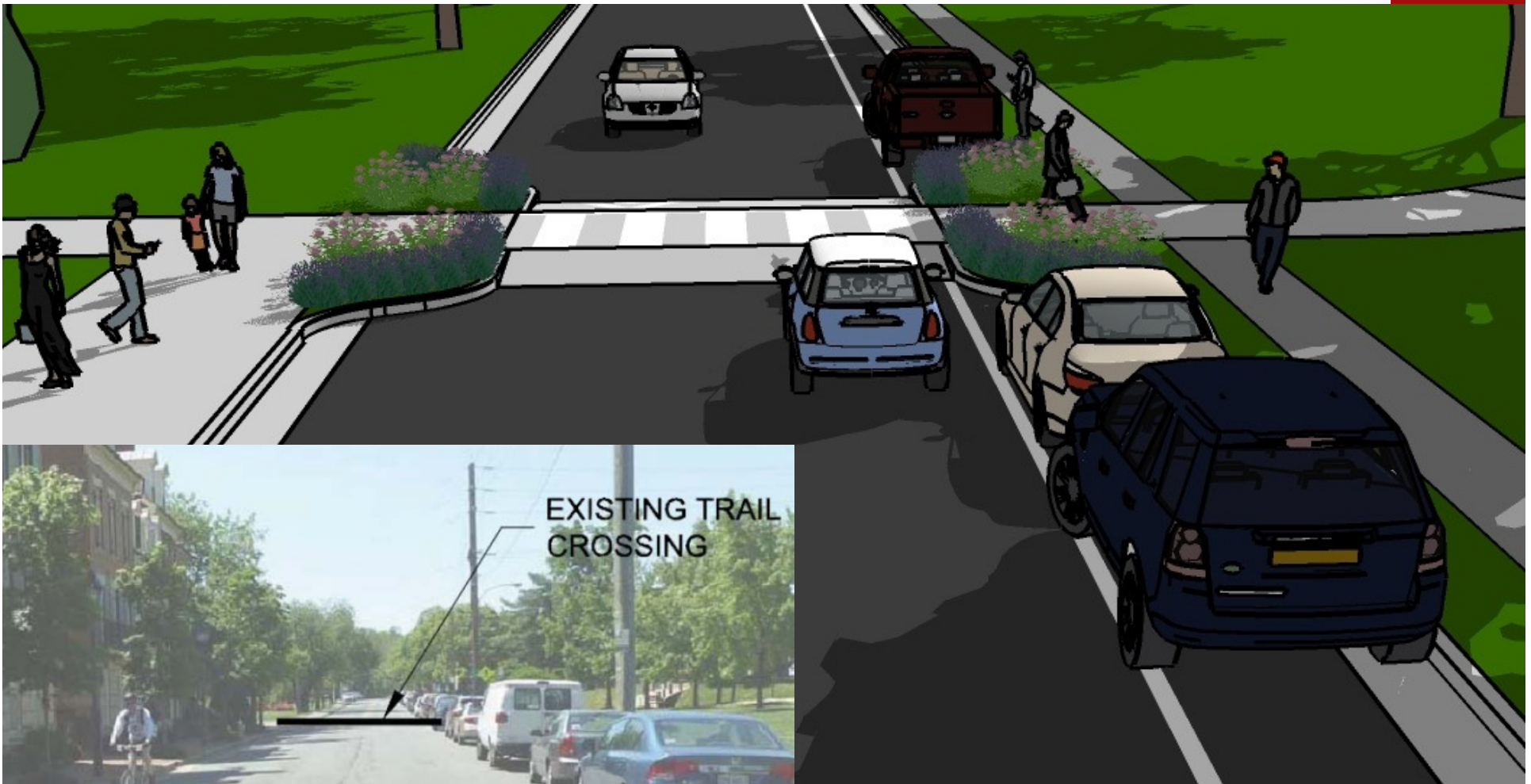
Windmill Hill Park

OPTION 1: RAISED CROSSWALK

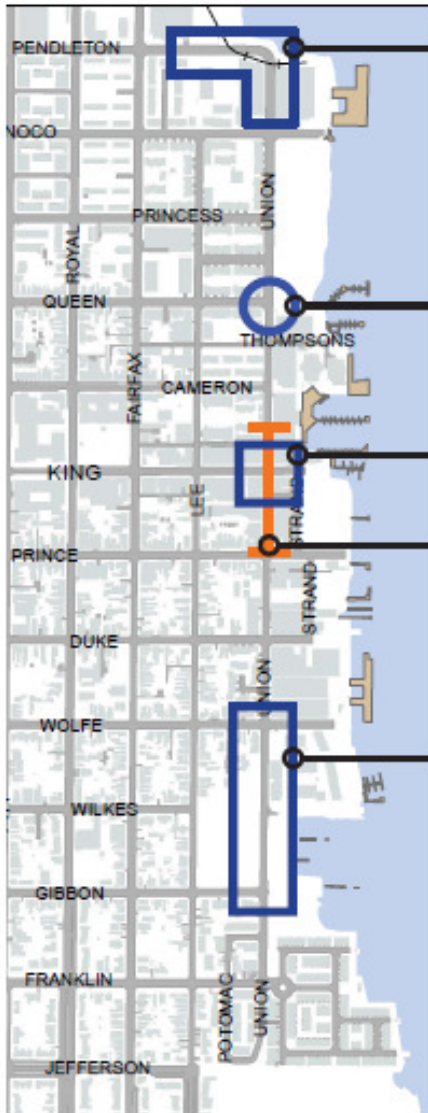


Windmill Hill Park

Raised Crosswalk Conceptual Improvement



Short-term Improvements



Mt. Vernon Trail Connection

Transition between Bike Lanes & Shared Lanes

Intersection of King & Union St

Pilot Part-Time Parking

Windmill Hill Park Improvements

Traffic Management & Enforcement

Add Bike Parking

Long-term Improvement Alternatives

- 1: No Change
- 2: Narrow Lanes; Move Tree Boxes; Widen Sidewalk
- 3: Shared Street
- 4: Remove Parking; Widen Sidewalk

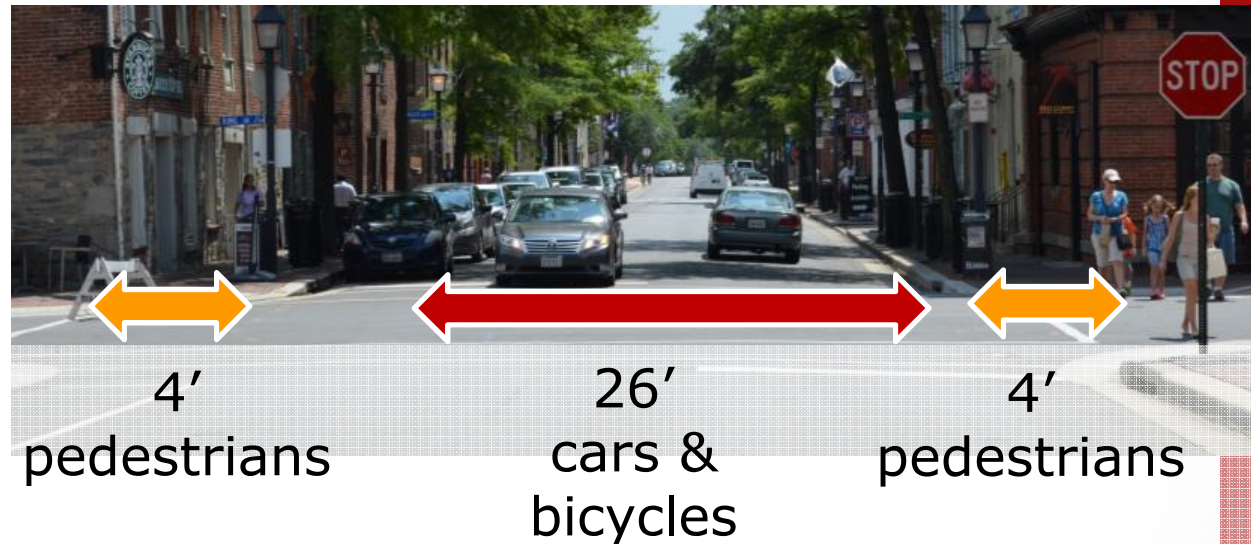


Long-term Improvement Alternatives

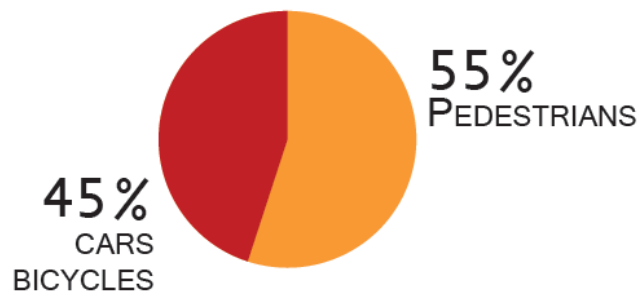
Alternative 1: No Change



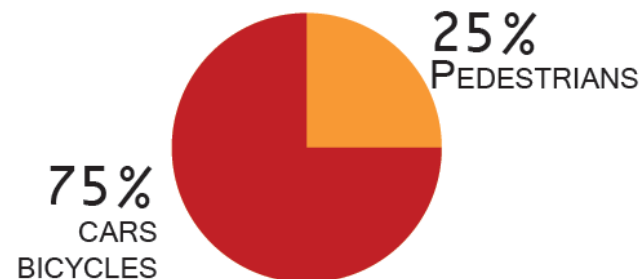
How is Union Street distributed today?



By volume...



By space...



Long-term Improvement Alternatives

Alternative 2:
Narrow Lanes,
Move Tree Boxes,
Widen Sidewalks



78% of members felt that removing the trees can be considered to meet other objectives, as long as trees are replaced and given better growing conditions.

- *August Waterfront Commission Meeting*

Alternative 3:
Shared Street



44% of members were comfortable and 22% open to the idea of pedestrians share space with motor vehicles and bicycles.

- *August Waterfront Commission Meeting*

Long-term Improvement Alternatives

Alternative 4:
Remove Parking,
Widen Sidewalk



Members were divided on removing on-street parking on all of Union Street, while 78% were comfortable with removing a portion of on-street parking at selected locations.

- *August Waterfront Commission Meeting*

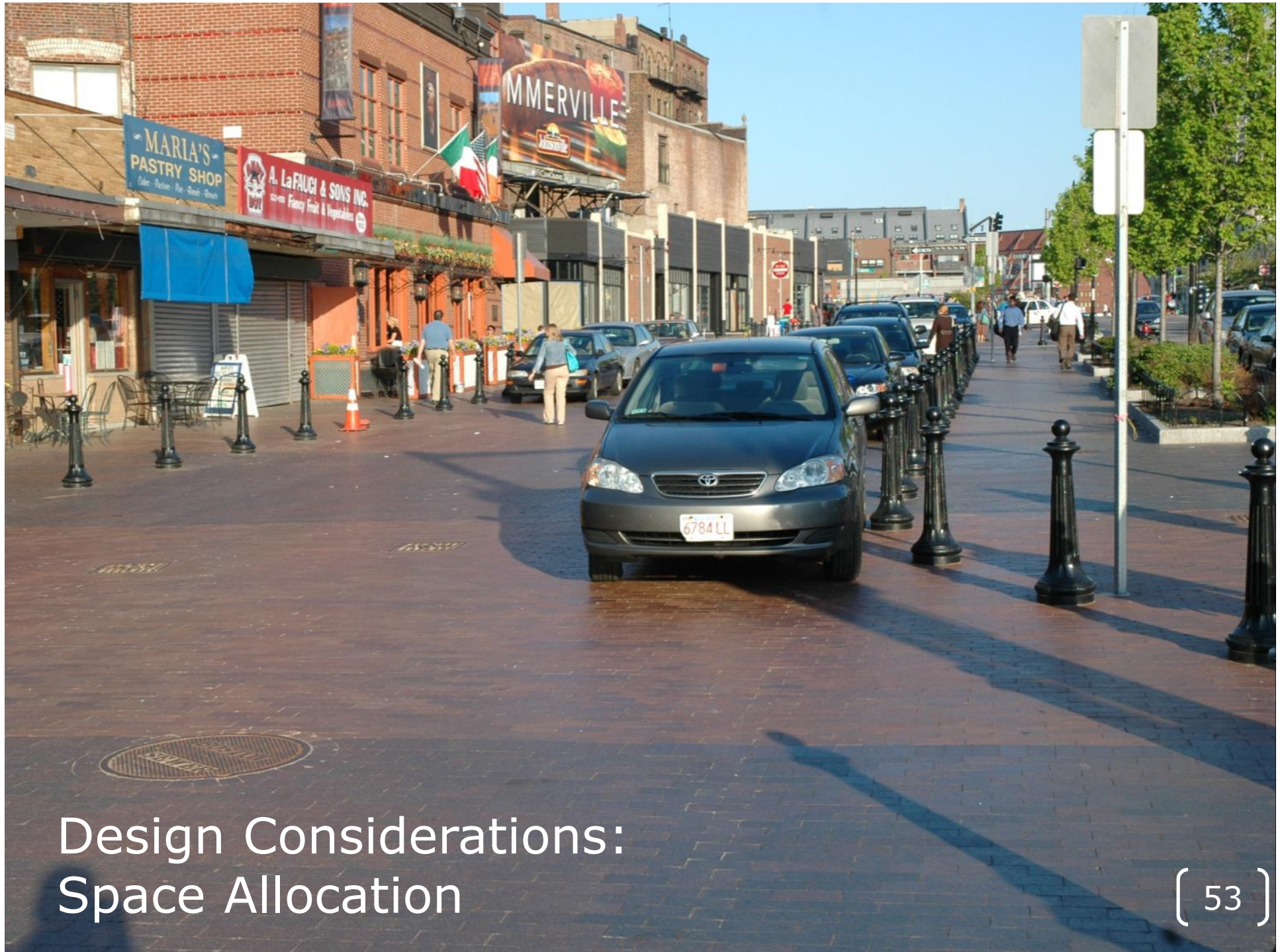
Long-term Improvement Recommendation



Keep Existing/No Change
Pendleton to Cameron

Shared Street
Cameron to Prince

Keep Existing/No Change
Prince to Jefferson

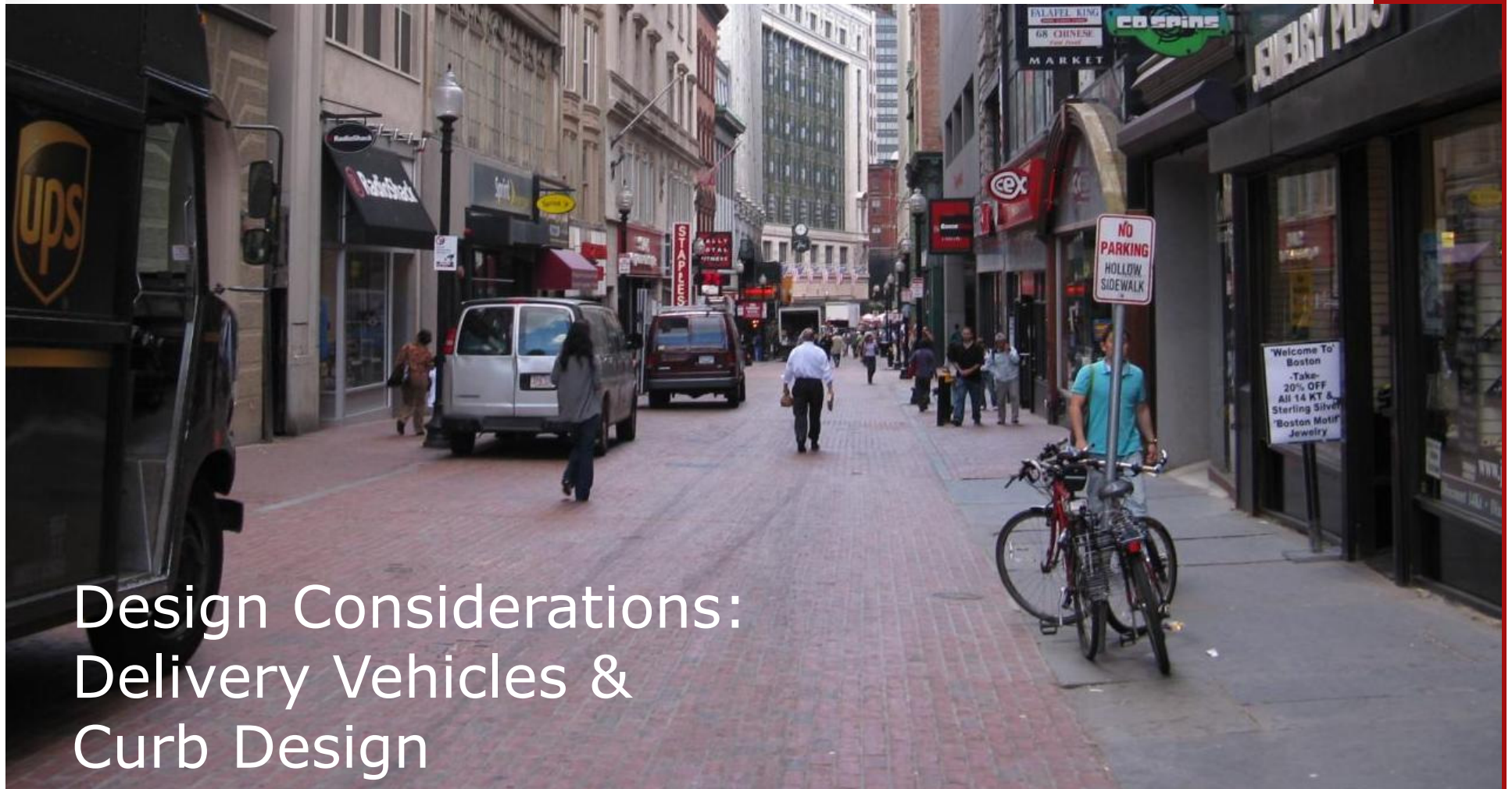


Design Considerations:
Space Allocation

Design Considerations: Space Allocation







Design Considerations: Delivery Vehicles & Curb Design



Design Considerations:
Traffic Calming and
Right-of-Way



Design Considerations:
Materials & Curb Placement

Design Consideration: Curb design & transition



Design Consideration: Special events



Photo Credit: Downtown Silver Spring



Next Steps

- Selection of Preferred Alternatives
- Planning Commission
- Transportation Commission
- City Council
- Final Plan Development